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ABSTRACT

Research approaches to studying classroom behavior management are reviewed. Examples of four types of research approaches (interaction analysis, ecological research, applied behavior analysis, and process-product correlational research are cited. Findings regarding immediate variables (positive attention for appropriate behavior, back-up reinforcers, intervention for inappropriate behavior, classroom rules, and teacher awareness) are presented, along with findings about more long-term variables (feedback and corrections, active academic responding, and transition and lesson pacing). Questions involving appropriate types of observational methods are noted and the need for research in special education settings is stressed. Fourteen pages of references and publications are included. (CL)

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Monograph No. 21

CLASSROOM BEHAVIOR MANAGEMENT: A REVIEW OF THE LITERATURE

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Abstract

Studies related to the management of classroom behavior are reviewed. Descriptions are provided for four lines of inquiry in the literature: interaction analysis, ecological research, applied behavior analysis, and process-product correlational research. The findings of research on both immediate and long-term variables are presented and evaluated. Implications of the review for practice and research are discussed.

Classroom Behavior Management: A Review of the Literature

In recent years, public attention has focused on the problem of classroom misbehavior in the schools. In a 1970 Gallup poll, 18% of the respondents listed "lack of discipline" as the major problem confronting the public schools; a similar survey in 1981 showed 36% of the respondents listing discipline-related problems as their major concern (Gallup, 1970, 1981). These increasing concerns are not unfounded: the National Institute of Education (1979) reported that, during the 1978-79 school year, one of every 20 public school teachers in urban areas reported having been physically attacked on school property, a 57% increase over the previous year. Fully one-fourth of the teachers reported having had property damaged or stolen. Fear of physical attacks or vandalism may well lead to increased teacher burnout and a higher turnover rate among teachers (McGuire, 1979).

Classroom behavior also has been shown to be related to student academic achievement. In a review of the literature predicting academic achievement from classroom behavior, Hoge and Luce (1979) concluded that positive relations between measures of pupil attention and pupil performance consistently were found, while generally negative relations appeared between measures of inattention and achievement. Other misbehaviors have been found to be related to academic performance as well, particularly for lower achieving students. Soli and Devine (1976) reported that negative correlations between "not attending" and academic achievement were strongest for low achieving students, and a variety of negative behaviors such as "looking around" or "playing with peers when such play was prohibited"

also correlated negatively with achievement for these students. Such findings have been replicated on a classroom wide basis--classrooms with overall lower achievement had higher rates of management problems (Good & Grouws, 1977)--and even on a school wide basis. In a study of 184 high school classrooms in the Chicago Public Schools, Frederick (1977) found that students in high-achieving schools were on task 92% of the time, as opposed to 70% and 84% for low-achieving schools.

Greater understanding of the causes and nature of behavior problems has evolved over the years. Reflecting a belief that emotional disturbance was a personality disorder residing within the individual, treatment of behavior disordered children in the 1950's most often was associated with inpatient psychiatric services (Resmierski, Knoblock, & Bloom, 1982) or psychodynamic counseling techniques (Redl, 1959). In the past 20 years, however, research and practice have begun to focus on the role of the environment in shaping and maintaining behavior disorders (Patterson, McNeal, Hawkins, & Phelps, 1967).

With this shift in understanding has come a shift in research emphasis and methodology. Research has begun to focus less on intrinsic teacher characteristics (such as "warmth" or "directedness") and more on what Bloom (1980) calls "alterable variables." As he states in a comprehensive review of the factors influencing learning:

> We believe that it is the teaching and not the teacher that is central, and it is the environment for learning in the classroom, rather than the physical characteristics of the class and classroom, that is important for school learning. (Bloom, 1976, p. 109)

It is only relatively recently that the study of teacher effects on student behavior has been carried out using actual classroom

observation. Of 10,000 published studies on teacher effectiveness, Dunkin and Biddle (1974) estimated that only 500 measured teacher effects directly, through observation. Much of the early research used principal and student ratings of teacher effectiveness, and often utilized concepts or categories so broad as to be of little specific research value (Dunkin & Biddle, 1974).

In recent years, research has begun to focus on observation of specific teacher behaviors and the relation of these to student outcomes. This research consistently has isolated a number of important teacher behaviors that correlate with academic achievement or appropriate classroom behavior (Stevens & Rosenshine, 1981). Four distinct lines of inquiry can be identified in this literature: interaction analysis, springing from the work of Flanders (1970); ecological research, based on the writings of Kounin (1970); applied behavior analysis, employing the concepts of operant psychology in the classroom (Skinner, 1953, 1968); and process-product correlational research, derived from the teacher effectiveness literature, but moving beyond it to actual classroom observation (Rosenshine, 1976). Before reviewing the findings of these four lines of inquiry, the defining characteristics of each are delineated.

Research Approaches

Interaction Analysis

In the late sixties and early seventies, a sizeable body of studies was undertaken using the approach that has come to be known as interaction analysis. Based upon both the ideas of "progressive education" in general (Dunkin & Biddle, 1974) and the work of Flanders

(1970) in particular, interaction analysis stressed the importance of an "indirect" teaching style, open-ended questions, student-directed learning, and the "warmth" of the teacher. The instrument used for observation was most often a coding system that included categories such as "teacher talk-accepts feelings" or "student talk-initiation"; a large number of such instruments were generated (Simon & Boyer, 1974). Despite the large body of data generated, few if any consistent findings emerged from this research that could be used to guide teaching (Travers, 1978). In an extensive review of the interaction analysis, or "classroom climate," literature, Dunkin and Biddle (1974, pp. 93-146) found that claims for both teacher "indirectness" and teacher "warmth" were unsupported by student outcome data. They concluded:

> As is true for many educators, both of the authors were introduced to the Commitment of progressive education and its associated ideologies at an early age, and it gives us not a little anguish to find faults in research that represents this commitment. Nevertheless, much of this research appears flawed. (p. 131)

In fact, recent research has tended to contradict the claims made by interaction analysis for an "indirect" teaching style, finding that a "direct" teaching style is more likely to correlate with student achievement gains (Evertson, Anderson, Anderson, & Brophy, 1980; Good, Sikes, & Brophy, 1973).

Ecological Research

The work of Kounin also has sparked a number of observational studies concerning teacher effects. In a summary of 15 years of research, Kounin (1970) postulated a number of teacher variables as

important in the management of student behavior. Among these were such concepts as "withitness" (the teacher's ability to communicate to students that she/he knows what is going on), "overlapping" (the ability to deal with two matters at the same time), smoothness of transitions, and momentum.

Although Kounin reported a positive relationship between these teacher behaviors and student outcomes in his 1970 study, attempts to replicate his findings often have led to weak or contradictory results. While Kounin reported strong positive correlations between "withitness" and "overlapping," and student freedom from deviancy and work involvement, Irving and Martin (1982) found the same variables to be negatively correlated with appropriate classroom behavior. Where positive results have been found between the original variables and student behavior, they typically have been weak (Brophy & Evertson, 1976), or based on questionable research methodology--the strong correlations reported by Arlin (1979) between teacher transitions and student misbehavior were based solely on a statistical analysis of his own observations.

Some of Kounin's ideas have been tested experimentally, with some positive results. Borg and Ascione (1982) trained teachers in the Utah State University Classroom Management Program and found significant differences between experimental and control students in minutes on task and in the number of mildly and seriously deviant behaviors. Still, management techniques utilized by the Utah State teachers included a number of concepts based on operant methodology, such as differential reinforcement of other behavior. Earlier studies

utilizing only Kounin-type variables yielded no significant results (Borg, Langer, & Wilson, 1975).

Part of the failure of these variables to produce consistent effects may be due to their original conceptualization. The variables originally described by Kounin--"dangles," "thrusts," "flip-flops," "valence and challenge arousal"--tend to be both abstruse in their naming, and somewhat abstract in their definition (Arlin, 1979). Some include two or more distinct teacher behaviors in one definition. Thus, Kounin's failure to define his constructs clearly and operationally may in part account for the lack of consistent research results.

Nevertheless, research stemming from these original variables has contributed to an understanding of which teacher behaviors result in more effective teaching. Attempts have been made to operationalize and refine Kounin's original concepts (Borg & Ascione, 1982). When transformed from broad categories into specific and discrete behavior codes--from "withitness" to "teacher stops disruptive behavior quickly"--positive correlations have been found between teacher and student behavior (Evertson & Emmer, 1982). Thus, although Kounin's overall conceptual scheme has proven inadequate, many results tend to support his predictions regarding specific teacher behavior.

Applied Behavior Analysis

One of the more consistent and fruitful research efforts in the observation of classroom behavior has been the body of literature comprising applied behavior analysis. Drawing upon the findings of operant psychology (Skinner, 1953), researchers in this tradition tend

to seek the causes of behavior problems not in individual personality variables, but in the interaction between the child and the environment. The methodology thus relies heavily on observation, and consequently has focused on precise definition of behavior and on the reliability and validity of observational assessment devices (Haynes, 1978).

Behavioral studies were possibly the first to show experimentally that teacher behavior could be shaping and maintaining student misbehavior. Thomas, Becker, and Armstrong (1968), systematically manipulating rates of teacher approval and disapproval, showed that changes in student disruptive behavior covaried systematically with changes in teacher behavior. Researchers applying the concepts of operant psychology have successfully shown such links between the environment and individual behavior in a variety of settings with both handicapped and regular classroom subjects (Kazdin, 1981).

The research model used in behavior analysis has generated some controversy. Based on single-subject research design (Sidman, 1960), the model seeks to control variability, not through large samples and statistical analysis, but through careful definition of the variables to be observed, combined with within-subject research designs, such as reversal or multiple-baseline designs. While some have criticized single-subject research on the grounds that such small sample size tends to limit generalizability of the findings, defenders have argued that the design in fact allows for better control of relevant variables and can detect causal relations better than correlational research with larger sample sizes (Johnston & Pennypacker, 1980).

Management variables drawn from the behavior analytic literature have proven to be important in the control of classroom behavior. Reese, Murphy, and Filipczak (1981) established three classrooms for students with behavioral or academic problems in a large urban junior high school, based on token reinforcement principles. At the end of the program, the experimental students had significantly higher grade-point averages, better attendance, and a lower rate of suspension than control students not in the program. In a four-year follow-up of multi-suspended junior-high students enrolled in a behavior management program, Safer, Heaton, and Parker (1981) reported encouraging results concerning the generalizability of such treatment. Once in high school, the experimental students had fewer disciplinary problems and higher attendance than did matched peers who had not been enrolled in the program.

Some studies have shown that behavioral interventions may be of greater value in producing desirable student outcomes than other psychodynamic or educational programs. In one of the more significant findings of the Follow-Through Planned Variation Study (Stallings, 1975), only the behavioral models were significantly different in a discriminant analysis from other programs using approaches based on the writings of Piaget, Dewey, or an open-classroom model. Students in the behavioral programs also showed greater growth on measures of reading and math achievement than students in other types of programs, or untreated control students.

Thus, variables drawn from the application of behavioral principles and techniques seem to be important in describing the

relationship between teacher variables and student outcomes. As Kazdin (1981) noted:

> Perhaps another contribution correlated with the development of alternative (behavioral) classroom techniques is recognition of the importance of teacher behavior in the classroom. Although the influence of the teacher obviously has been recognized, concrete demonstrations of the dramatic influence that teachers can exert on the basis of specific behaviors they perform in the class are relatively recent. If behavior modification has helped to increase accountability in education, this would constitute a definite contribution. (pp. 40-41)

Process-Product Research

In a review of observational classroom research, Rosenshine and Furst (1973) concluded that few studies had demonstrated any reliable relationships between teaching and learning. They recommended a model for improving educational research that contained three elements:

1. development of procedures for describing teaching in a quantitative manner;
2. correlational studies in which the descriptive variables are related to measures of student growth; and
3. experimental studies in which the significant variables obtained in the correlational studies are tested in a more controlled situation. (p. 122)

Since then, a body of literature has emerged, utilizing at least the first two steps of this paradigm, that has come to be known as process-product classroom research. As the above model implies, such research has attempted to develop observational, quantitative measures of teaching behaviors and then to correlate these with student outcomes, such as performance on standardized achievement tests.

The model can perhaps best be described by focusing on one example: the Beginning Teacher Evaluation Study (Fisher, Berliner,

Filby, Marliave, Cahen, & Dishaw, 1980). Although originally designed as a program evaluation study, the Beginning Teacher Evaluation Study (BTES) soon shifted its focus to identifying and describing teaching skills and their impact on student outcomes. Initial fieldwork and pilot studies resulted in the development of measurement instruments and the identification of important variables through simple correlation. Finally, these variables were investigated more systematically in a two-year field study of 50 second and fiftn grade classrooms.

Correlation and regression analyses, attempting to predict student achievement through combinations of variables, identified a number of important relationships summarized by the investigators as Academic Learning Time (Fisher et al., 1980). This model of classroom instruction included three aspects: (a) the amount of time allocated for academic instruction during the school day, (b) the amount of time the student is actively engaged in academic learning, and (c) the level of success the student experiences on assigned academic tasks. All three variables correlated significantly with student performance on achievement tests (Borg, 1980).

Process-product research is not without its problems. Thus far, the investigations have been primarily correlational, providing no evidence concerning the direction of causation (Good & Grouws, 1977); and, attempts to study the observed variables experimentally have met with only modest success (Anderson, Evertson, & Brophy, 1979). In addition, process-product research thus far has relied primarily on standardized achievement tests for its dependent measures, and the

reliability, validity, and standardization of such measures is often suspect (Salvia & Ysseldyke, 1981). The large majority of such studies have examined only teachers and students in regular classrooms, and those that have attempted to apply the findings to special populations have not always been able to replicate the results (Thurlow, Graden, Greener, & Ysseldyke, 1982). In fact, a large proportion of the observational instruments used in process-product research have failed to provide results generalizable over time and classroom, even within regular classroom settings (Shavelson & Dempsey-Atwood, 1976). Finally, since cognitive entry variables are estimated to account for up to 60% of post-test achievement variance, the correlations between teaching behaviors and student outcomes have been relatively small, typically accounting for only 8% to 15% of the variance (Borg, 1980).

Nevertheless, such investigations have isolated a number of teaching behaviors that consistently correlate with improved student outcome (Bloom, 1980; Stevens & Rosenshine, 1981). Perhaps as important as specific outcomes has been the shift in research methodology. As Bloom (1980) noted:

> perhaps the most important methodological change is the movement from what I have termed stable or static variables to variables that are alterable either before the teaching and learning processes or as part of these processes.... This shift enables researchers to move from an emphasis on prediction and classification to a concern for causality and the relations between means and ends in teaching and learning. (p. 382)

Thus, although process-product research is a relatively recent methodology, and its findings are as of yet tentative, this body of

research has begun to identify variables that may prove important in assessing the effects of teacher behavior.

Important Variables in Classroom Management

Although four distinct research methodologies have been identified, investigators using these methodologies have overlapped considerably in their findings. For instance, although teacher praise as a reinforcer springs directly from the theory and practice of operant psychology, many process-product studies also have included it as a variable (Brophy, 1981). Thus, no attempt will be made to separate the findings of observational literature by research methodology; rather, findings will be grouped by construct.

The individual variables can be grouped into two types: immediate variables and long-term variables. Immediate variables are those that have been observed to have consistent effects on the observed behavior of students, in terms of fewer disruptive behaviors, greater attention to task, and so on. Long-term variables are those that have been correlated with student outcomes that are less directly observable, such as grades and scores on achievement tests. Although few studies have directly examined the effects of long-term variables on student behavior, it seems possible that teaching behaviors provide their long-term benefits by structuring the immediate learning environment. This increased structure may well correlate with more attentive and less disruptive behavior among students.

Immediate Variables

Positive attention for appropriate behavior. The notion that appropriate classroom behavior could be increased, and inappropriate

behavior decreased, through the use of contingent teacher attention was one of the first to be verified experimentally in the classroom. Zimmerman and Zimmerman (1962) first reported findings suggesting that the disruptive behavior of behaviorally disordered children could be decreased by making the attention of the experimenter contingent upon appropriate behavior. Becker, Madsen, Arnold, and Thomas (1967) demonstrated experimentally that teacher praise for "behaviors which facilitate learning" increased those behaviors, and decreased disruptive behavior of students in the regular classroom. These early studies used only small samples, however, and single case designs without reversal.

The effect of teacher attention was shown more conclusively in a study by Hall, Lund, and Jackson (1968) in which they examined pupil study behavior. Using a single-subject ABAB design (baseline observation; treatment implemented; return to baseline; treatment reinstituted), they found a 30%-40% increase in study behavior during the periods when teachers systematically praised or otherwise provided attention for such behavior. Decreases in disruptive behavior and improved grades also were reported for the target students. These results were attributed to a shift in reinforcement contingencies: during baseline, the majority of teacher attention was directed toward criticizing non-study behavior, while during intervention, teacher attention was contingent upon appropriate behavior and inappropriate classroom behavior was ignored.

These results have been replicated in a number of settings. In a three-phase study of classroom management strategies, Madsen, Becker,

and Thomas (1968) systematically implemented rules, praise, and ignoring in kindergarten and second grade classrooms. They demonstrated that only the intervention of teacher praise for appropriate behavior resulted in a decrease in the rate of inappropriate classroom behavior. A number of studies have shown that it is possible to train teachers to increase their attention to desirable behavior, and thus improve classroom behavior (Cooper, Thomson, & Baer, 1970; Cossairt, Hall, & Hopkins, 1973).

O'Leary and O'Leary (1977) have outlined three important characteristics necessary for teacher attention to function as a reinforcer: it must be contingent upon behavior, it must specify the desired behavior, and it must be delivered by the teacher in a sincere and credible manner. After reviewing the literature on contingent vs. non-contingent teacher approval, Sharpley and Sharpley (1981) concluded that contingent teacher approval was more important than non-contingent approval in shaping and maintaining desired classroom behavior. Kazdin and Klock (1973) manipulated the sincerity and credibility of praise, by increasing contingent non-verbal teacher attention. They demonstrated that praise, plus non-verbal attention, was significantly more effective in maintaining student attentiveness than was verbal praise alone.

Despite the long history of research on teacher attention, much controversy still exists, especially regarding teacher praise. Good and Grouws (1977) found that in 100 third and fourth grade classrooms, frequency of teacher praise correlated negatively with both achievement test results and classroom climate. In reviewing such

results, Brophy (1981) suggested that praise does not, and often is not even intended to, always function as a reinforcer. He noted that, rather than being applied contingently, teacher praise often is determined by a student's personal qualities and the affective responses of the teacher.

Research in this area also is complicated by low naturally occurring rates of teacher approval in the regular classroom. In a summary of 16 studies on natural rates of teacher approval and disapproval in the classroom, White (1975) found that although rates of praise may be relatively high in grades 1 and 2, after second grade the rate declines: approval of appropriate conduct was found to be virtually non-existent by seventh grade, although disapproval remains relatively high. Studying the same teacher behavior in 10 seventh grade classrooms, Thomas, Presland, Grant, and Glynn (1978) found that, for the majority of teachers studied, disapproval statements were at least three times more frequent than approval statements. Given the striking negative results demonstrated for such a pattern of teacher behavior (Spear, 1970), its persistence in the classroom is somewhat puzzling. The predominance of disapproval has been explained by the possibility that some teachers feel appropriate behavior deserves little recognition (Thomas et al., 1978), or that, while in the long run increasing disruption, disapproval statements do stop misbehavior immediately, and are thus reinforcing to teachers (White, 1975).

Finally, research on teacher attention may be complicated by the interaction of teacher approval rates, behavior, and student ability

level. Heller and White (1975) found that teachers emitted more disapproval statements in their lower academic ability classes than in their higher ability classes, and that such statements were almost exclusively directed toward behavior. Such interactions may make contingent teacher attention difficult to teach: Harris and Kapiche (1978) found failure to praise contingently one of the greatest problems in training teachers to use behavior modification. Thus, although effective when used specifically and contingently, teacher attention seems to be a complicated variable, and it is clear that further research is needed to delineate the parameters of both contingent and naturally occurring teacher attention and praise.

Back-up reinforcers. The use of token economies and other forms of tangible reinforcers have been studied extensively in their relation to student behavior. Although laboratory studies demonstrated that token systems could be effective in modifying children's behavior (Staats, Finley, Minke, Wolf, & Brooks, 1964), it was not until the late sixties that the effects of token economies were tested in classrooms. In a study involving seven disruptive second graders in a regular classroom of 21 children, O'Leary, Becker, Evans, and Saudergas (1969) introduced four interventions--rules, structure, praise and ignoring, and a token system--over a period of eight months--and found that only the token system reduced the disruptive behavior of the experimental subjects. Since then, token economies have been used in a variety of settings, and have been found effective in decreasing disruptive behavior and shaping appropriate behavior across a wide range of populations (Kazdin, 1977; O'Leary & Drabman, 1971).

Although the term token economy conjures up images of edible reinforcers, a variety of backup reinforcers have been found to be effective in managing behavior. In an application of the Premack principle that high probability behaviors may be used to reinforce low probability behaviors (Premack, 1965), a number of studies have used free time as a reinforcer for academic responding (Couch & Clement, 1981; Osborne, 1969). Others have used bowling (Hansen, McLaughlin, Hansaker, & Young, 1981), or video-games (Robinson, Newby, & Ganzell, 1981) as backup reinforcers within a token economy.

Although many such studies are based on the assumption that what is reinforcing can only be determined by individual preference, other studies have examined the effects of group contingencies. In a review of the literature, Litow and Pumroy (1975) concluded that group contingencies are effective, and that interdependent contingencies (wherein the whole group must perform the contingent behavior before any individual is reinforced) are most effective. In some cases, group contingencies may be more effective than individual contingencies. In a series of four studies with small groups of resource room or low-achieving students, Nevin, Johnson, and Johnson (1982) found group contingencies to be superior to individual contingencies in increasing rate of correct academic performance and in decreasing negative social interactions, and concluded that group contingencies may be preferable for children with learning or behavior problems.

The success of a token economy may also be dependent on the nature of the response chosen. Ferritor, Buckholdt, Hamblin, and

Smith (1972) studied a token economy in two third grade classrooms and found that contingencies for attending to task alone increased attending behavior and decreased disruptive behavior, but had little effect on measures of work completed. Reinforcement contingencies based solely on "correct work" increased accuracy of academic work, but had little effect on attending, and actually seemed to correlate with increased disruption. Only when the contingencies included both accuracy of work and attention to task did both behaviors respond. Others have found, however, that it is possible to reduce behavior problems through reinforcement of academic responding (Allyon & Roberts, 1974; Campbell-Goymer, & Rickard, 1981).

The effectiveness of backup reinforcement systems may also be age dependent. Forness (1973) postulated a developmental reinforcement hierarchy, suggesting that token systems are most effective for younger children. The Follow-Through Planned Variation Study (Stallings, 1975) provided some empirical support for this theory: use of a token economy was related to academic achievement only at the first grade level.

Together with the literature on positive teacher attention, investigations of token and tangible reward systems provide extensive evidence of the effectiveness of reinforcement in the classroom. In a quantitative synthesis, Lysakowski and Walberg (1981) reviewed over 5,000 studies using reinforcement. They found that the general effect of reinforcement on classroom learning is "moderately large and fairly robust," and that students in special education, in general, are more influenced by reinforcement than other students. No difference in

efficacy was found between tokens, tangible reinforcers, and social attention.

Intervention for inappropriate behavior. Much of the early literature on classroom behavior management recommended that only positive reinforcement be used to control classroom behavior, and that disruptive behavior be extinguished by ignoring (Madsen, Becker, & Thomas, 1968; Warren, 1971). But while perhaps more acceptable ideologically, the praise-ignore paradigm often fails to control inappropriate classroom behavior (cf. Jones & Miller, 1974); although theoretically based on extinction, misbehavior still may be maintained by peer attention or other environmental contingencies beyond the control of the teacher. Indeed, some have argued that some active procedure to extinguish undesired or inappropriate behavior is inevitable in the process of socialization. This is especially true if such behavior has

> become well established and persistent through the child's earlier experience... the distance (between such behavior and desired alternatives) will often be so great as to make it very unlikely that spontaneous changes in the child's behavior would even approximate the requirements for the elicitation of external rewards or other forms of positive social reinforcement from others....[It] is the aversive effects of punishment which make it possible to suppress the child's initially predominant behavior to the point where other behavioral alternatives may occur with a frequency that allows positive reinforcement to exercise its effects on the learning process. (Aronfreed, 1968, p. 274)

Many studies have found a combination of praise plus some form of direct intervention important in the control of classroom behavior. In a pilot study of children with a history of behavior problems in grades 4 through 6, Mattos, Mattson, Walker, and Buckley (1969)

demonstrated that only positive consequences plus the use of a time-out procedure resulted in a decrease in disruptive behavior. McAllister, Stackowiak, Baer, and Conderman (1969) found a combination of praise and reprimands important in controlling the behavior of a low-track high school English class. Kindall, Workman and Williams (1980) found the praise-reprimand combination superior to praising and ignoring in increasing attention to task and decreasing inappropriate behavior.

A number of interventions have been shown to successfully reduce classroom misbehavior. Of these, time out from positive reinforcement, ranging in severity from contingent removal of material or activity to seclusion time out (removal of the child to a special area or seclusion room), has been studied and found successful most often (cf. Powell & Powell, 1982). Other successful interventions have included contingent after-school time (Swanson, 1979), loss of tokens or "response-cost" (Pace & Foreman, 1982), and the use of reprimands delivered in a soft tone of voice (O'Leary, Kaufman, Kass, & Drabman, 1970).

Still, the use of punishment-related interventions does not receive unqualified acceptance. Objections have been raised against the use of time out on ethical grounds (Gast & Nelson, 1977; Powell & Powell, 1982), while others have questioned the efficacy of reprimands in the classroom. While the praise-reprimand paradigm may be more immediately effective in maintaining classroom discipline, there is evidence that, since it is a more extreme intervention, it may not generalize as well to a normal setting as does a praise-ignore

combination (Kindall et al., 1980). In the Beginning Teacher Evaluation Study (Fisher et al., 1980), more frequent reprimands for inappropriate behavior correlated negatively with achievement test results. Inappropriate use of reprimands may even accelerate misbehavior. When Madsen, Becker, Thomas, Koser, and Plager (1968) experimentally increased the frequency of teachers' "sit down" commands, the frequency of student standing at inappropriate times actually increased.

It is therefore important to delimit the effective characteristics of interventions for inappropriate classroom behavior. Although little actual classroom research has focused on such parameters (McDonough & Forehand, 1973), there exists a fairly large and consistent body of experimental evidence from laboratory settings using human subjects. Important factors include timing of consequences, consistency, cognitive correlates, nurturant relations, and the intensity of the punishment (MacMillan, Forness, & Trumball, 1973).

Several experiments investigating the timing of punishment were conducted by Aronfreed (1968). Based on the work of Mowrer (1960), Aronfreed predicted that punishment at the initiation of transgression would cause more anxiety to accrue to that point, inhibiting subsequent transgressions more effectively than would punishment delivered late in the transgression sequence. In a study using 40 school children as subjects, the timing of punishment was systematically varied. Individuals in the first group were reprimanded verbally for choosing the more attractive of two toys as

they began reaching for it, while the other three groups were punished only after picking up the toy or holding it for some time. In a test for "internalization" when the experimenter left the room for 10 minutes, the early punished group showed the longest latencies, with one-half of the children never touching the forbidden toys. Latencies to transgression were directly proportional to immediacy of consequences, with the latest punished group invariably playing with the forbidden toy, typically within a minute after the experimenter's departure. These results have proven very reliable (Parke & Walters, 1967; Walters, Parke, & Cane, 1965;), and have been observed to a certain extent in classroom settings. In a study comparing effective and ineffective classroom management styles among teachers, Evertson and Emmer (1982) reported that more successful managers of junior high classrooms stopped disruptive behavior more quickly and rarely allowed off-task behavior to continue for more than a few seconds.

The effectiveness of punishment also may be mediated by the relationship of the child to the punishing agent, and the degree of cognitive structure present. Using the same paradigm as Aronfreed used, Parke and Walters (1967) showed that, regardless of punishment conditions, children who had been exposed to positive interaction with the punishing agent prior to the actual experiment showed "significantly greater resistance to deviation" than those without such prior contact. Again with the same experimental design, Cheyne and Walters (1969) reported that boys who had been given a reason for the prohibition on attractive toys (i.e., "they will wear out faster") spent less time touching the forbidden toy than those for whom little

or no cognitive structure was present. Anderson et al. (1979) observed a similar relationship in 17 first and second grade classrooms; when teacher criticism was specific, and accompanied by a specification of desired alternative behavior, it was positively related to achievement. Other investigators have found general criticism negatively related to achievement (Stallings, 1975).

The consistency with which interventions are applied also may play a crucial role in determining their effectiveness. Field studies showing that one of the most important differences between delinquent and non-delinquent boys is the inconsistency of punishment in the home received by the former group (Gluek & Gluek, 1952) have been validated in the laboratory as well. Deur and Parke (1970) trained 120 first, second, and third grade boys to punch an automated Bobo doll on three different acquisition schedules. Results indicated that boys alternately rewarded and punished during acquisition were more resistant to extinction of the punching response than either boys who had been consistently rewarded, or boys who had been partially reinforced. A classroom analogue is not difficult to conceptualize: teachers who reprimand certain misbehaviors inconsistently may find those behaviors increasing, since such behaviors may receive reinforcement from peers between reprimands.

Finally, the intensity of punishment has been shown to have strong effects in experiments with human subjects. Investigating interactions between intensity of punishment, timing, agent nurturance and cognitive structure, Parke (1969) found that first and second grade boys who were punished with a loud tone touched the forbidden

toy less often and for shorter durations than those initially punished with a less intense tone. In their experiments on consistency, Deur and Parke (1970) found that, across treatment conditions, a buzzer led to faster extinction of the punching than did simple non-reinforcement. In classroom settings, 30 minute time outs have proven more effective than 5-minute time outs in suppressing disruption (Burchard & Barrera, 1972), and 5-minute time outs more effective than those of one-minute duration (Hobbs, Forehand, & Murray, 1978).

These findings may help explain the negative findings for reprimands in some studies, as well as providing hopeful alternatives. In many classrooms where the use of reprimands is high, students may be habituating to a punishment that is initially too weak to have an effect. In a comparison of teachers whose classrooms had low rates of disruption with teachers whose classrooms had high rates of disruption, Jones and Miller (1974) described a cycle in the high disruption classrooms wherein the teacher issued low level warnings or ignored misbehavior until classroom disruption accelerated to such a high level that classroom control could be reasserted only through "yelling, criticism, or threats." The investigators were able to successfully bring such misbehavior under control by training these teachers to deliver short low-intensity reprimands (such as "that's enough," or "not now") immediately after the initiation of disruption, accompanied by addressing the student by his/her name or touching his/her arm. This transformation provides an illustration of the use of immediate consequences, as well as an emphasis on the nurturant relationship. The successful use of reprimands delivered in a soft

tone of voice (O'Leary et al., 1970) or in close proximity to the offending student (Van Houten, Nau, MacKenzie-Keating, Sameoto, & Colavecchia, 1982) also may cause the relationship between the teacher and student to be emphasized, thus increasing intervention effectiveness.

Classroom rules. The use of some form of rules in the classroom may be a practice as old as teaching itself. Yet, it is only recently that the function of classroom rules has been systematically investigated. The main function of classroom rules may be to provide a discriminative stimulus to the child concerning appropriate and inappropriate responding in the classroom. Becker, Engelmann and Thomas (1975) recommended that teachers always specify the desired classroom behaviors in conjunction with any reinforcement program, and repeat rules as often as necessary. In the absence of such discriminative stimuli, accidental contingencies may prevail, ensuring that a response emitted more often will, simply by its frequency, be reinforced at a higher rate (Haring & Phillips, 1972). Rules also may provide a cognitive structure that cuts across occurrences of punishment, decreasing the necessity for every intervention to occur immediately after transgression (Aronfreed, 1968).

Not all recent investigators agree that the use of rules specifying appropriate behavior is valuable. In a review of the literature, Duke (1978) concluded that there was little reason to believe that the presence or absence of school rules bears any relationship to learning outcomes. It is unclear, however, whether Duke was referring to general school rules, such as those governing

style of dress or transitions between classes, or to classroom rules delineating appropriate or inappropriate behavior during lesson time.

In general, both experimental and classroom research do seem to support the use of some sort of cognitive structure concerning classroom behavior. In an experimental study utilizing the forbidden toy-attractive toy paradigm, Parke (1969) found that immediacy of consequences and degree of agent nurturance had significant effects on effectiveness of punishment only in interaction with the explanations provided to subjects. Aronfreed (1968) reported that intensity of punishment also may be mediated by cognitive structure. When subjects in his experiments were provided with clearly discriminable alternatives, more intense punishment led to greater suppression. However, when the cues for discriminating between the forbidden and acceptable toys were complex and difficult to master, intensity of punishment had no effect on speed of learning, and more intense punishment actually resulted in less suppression during a test for generalization.

Classroom research, meanwhile, has focused on the importance of cognitive structure in positive programs. Herman and Tramontana (1971) found that token reinforcement in and of itself resulted in little decrease in the rate of misbehavior for pre-school children with initial high rates of misbehavior. Instructions added to reinforcement resulted in an immediate and marked decrease in the frequency and variability of disruptive behavior.

In a study on effective management in junior high classes, Evertson and Emmer (1982) began to delineate some of the important

characteristics of classroom rules. Sheer number of rules and time devoted to explaining rules appeared to have little relationship to overall effectiveness; what appeared to differentiate effective and ineffective managers was the clarity and enforcement of the rules. Rules in the classrooms where behavior management was more effective tended to define behavior more specifically, and were more thoroughly explained by the teacher. Teachers who proved more effective in managing classroom behavior also enforced their rules more consistently, and often cited the rules in stopping disruptive behavior.

Teacher awareness. Teacher awareness of student behavior as an important dimension of classroom management was first studied by Kounin (1970), in his concepts of "withitness" and "overlapping." Withitness was defined as a "teacher's communication to the children by her actual behavior... that she knows what the children are doing." It consists of freedom from two types of mistakes: (a) "target mistakes," in which the teacher 'desists' (reprimands) the wrong child for a deviant act, or desists a less serious deviancy, while overlooking a more serious deviancy occurring simultaneously, and (b) timing mistakes, in which the teacher waits too long to desist the behavior. Overlapping referred to the ability of the teacher to focus his or her attention on more than one thing going on in the classroom at the same time. For example, a teacher reading with a student would evidence overlapping if able to stop classroom disruption without interrupting the reader. Although Kounin found withitness to be more highly correlated with "freedom from deviancy," he believed

overlapping to be important as well, as a more aware teacher is more able to pick the correct target child and desist the misbehavior in time.

Although Kounin's reasoning seems sound enough, methodological errors may have prevented replication of his work. Irving and Martin (1982) obtained negative correlations between withitness and a classroom free of disruption. They point out that Kounin's original formula for scoring withitness--total number of desists divided by the number of mistake free desists--may result in teachers who show more evidence of withitness actually receiving lower withitness scores. This study also failed to find any significant correlations between overlapping and student behavior.

When the concept of teacher awareness is defined by more specific teacher behaviors, correlations with student outcome improve. Borg and Ascione (1982) trained teachers in a number of classroom management techniques and found significant differences in achievement and student behavior between experimental classrooms and control classrooms (taught by untrained teachers). In accounting for the differences between the classrooms, they reported that experimental teachers asked students about their progress on assigned work significantly more often and alerted off-task students that they were liable to be called on or have their work checked. In a comparison of teachers who were effective and ineffective classroom managers, the most highly significant difference between the two groups was on the variable, "effectively monitors student progress and completion of assignments" (Evertson & Emmer, 1982). Greater teacher awareness also

may correlate positively with achievement: Stallings (1975) reported that greater movement around the classroom by the teacher monitoring work correlated positively with all subscores of math achievement tests for the third graders in the Follow Through classrooms.

Long-Term Variables

In contrast to immediate teacher variables, which have shown evidence of a direct relationship with immediate and observable student behaviors, those variables here classified as long term have shown a relationship with outcomes, such as academic achievement, that may be no less important, but are less directly measurable. In addition, the relationships have been investigated only correlationally; that is, classrooms whose students scored higher on achievement tests also tended to be classrooms in which the teacher evidenced these behaviors. Nevertheless, it is possible that such variables influence achievement by providing a greater degree of classroom structure. As it is not inconceivable that the long-term benefits of increased structure may be due to immediate effects on student behavior, a brief review of literature concerning these variables follows.

Feedback and corrections. In a review of process-product findings on effective teaching, Stevens and Rosenshine (1981) found one of the most important characteristics of effective instruction to be a demonstration-prompt-practice paradigm. That is, the teacher first demonstrates a new skill, then provides feedback and corrections as the student learns the skill, and finally gives the student the opportunity to practice the skill. The second step of the process,

feedback and corrections, has received empirical support in the greatest number of studies.

Comparing the classrooms of 30 second and third grade teachers whose classes had consistently shown greater learning gains than matched controls, measured by achievement over a three year period, Brophy and Evertson (1976) reported that teachers who were most successful in promoting greater learning gains provided more feedback on an individual basis. These results have been replicated in similar studies at the first grade (Anderson et al., 1979) and fourth grade levels (Good & Grouws, 1977), but not at the seventh grade level (Evertson et al., 1980).

The importance of feedback also has been verified in larger studies. In the Beginning Teacher Evaluation Study (Fisher et al., 1980), the percentage of instructional time during which the student received feedback was positively related to student engagement rate and to achievement. In the Follow Through Planned Variation Study, Stallings (1975) found significant correlations between all forms of academic feedback and academic performance.

Most of these studies have focused on elementary school children. Evidence exists to support the findings of Evertson et al. (1980) that the function of feedback may differ across grade levels. While Weinstein (1976) found that first grade teachers praised high and low achieving students with equal frequency, Good et al. (1973) found that, in the seventh and eighth grades, high achieving students were more likely to receive feedback about their responses than were low achievers. Thus, although feedback and corrections have consistently

proven important at the elementary school level, generalizations to older students may not be warranted.

Active academic responding. One of the more significant findings of observational teacher effectiveness research has been that amount of student learning is directly proportional to amount of time actively engaged in academic learning. The concept of academic engaged time was most strongly supported by Fisher et al. (1980). In the 50 classrooms observed, where the average amount of time allocated by teachers to reading ranged from 10 to 50 minutes per day, they found that the amount of time allocated to instruction in a given subject was "positively associated with student learning in that content area." The amount of allocated time that students actually were engaged in learning also correlated positively with learning outcomes.

Stallings (1975) found a number of important relationships between academic engagement and outcome for both first and third grade students. The time spent per day in academics, the number of students engaged in math at any given time, the total academic verbal interactions, and even the length of the school day, were all positively correlated with scores on achievement tests at the end of the year. These relationships were even stronger for those students with low entering achievement. Stallings concluded, "Children who performed well on tests of reading and math seemed to be in classrooms where more time was spent in developing academic skills" (p. 80).

Teacher-directed lesson structure. Stevens and Rosenshine (1981) reported that recent research has shown that teachers who have proven

more successful in promoting learning gains have been those most in control of the learning process:

> they selected and directed the academic activities, approached the subject matter in a direct businesslike way, organized learning around questions they posed, and occupied the center of attention. In contrast, the less successful teahers made the students the center of attention, organized learning around the students' own questions, and joined or participated in students' activities. (p. 2)

Fisher et al. (1980) reported that structuring the lesson and giving directions on task procedures were positively associated with high student success. Stallings (1975) reported that when instruction is purely social, absenteeism increases; it decreases as conversations become purely task oriented. In a review of the literature, Rosenshine (1976) reported that no non-academic activity has been shown to correlate positively with student achievement.

Transition and lesson pacing. Kounin (1970) was among the first to study the importance of what he termed "smoothness" and "momentum." Smoothness referred to how well the teacher handled transitions between subjects or activities, momentum referred to the pace of the lesson. From a correlational analysis he concluded that "techniques of movement management are more significant in controlling deviancy than are techniques of deviancy management as such" (p. 108).

The use of imprecise and obscure terms such as "dangles," "thrusts," and "flip flops" for transitions and "overdwelling" and "fragmentation" for lesson pacing, may have prevented replication of Kounin's original findings (Irving & Martin, 1982). But the importance of lesson pacing and transitions has been affirmed by other investigators. Anderson et al. (1979), in training teachers to

implement practices found effective in process-product research, reported success in training teachers in decreasing time spent in transition, and that these more efficient transitions bore a significantly positive relation to student achievement results.

The importance of a brisk instructional pace also has received some empirical support. Both Stallings (1975) and Anderson et al. (1979) reported that the frequency of academic interactions per minute related significantly to both reading and math achievement. Good, Grouws, and Beckerman (1978) found that teachers whose students consistently obtained higher average scores on achievement tests covered an average of 90 pages in the math curriculum over a three-month period, while less effective teachers covered an average of only 56 pages in the same period.

Other variables. While certain teacher behaviors have evidenced a positive relationship to student outcome, other variables have shown less consistent relations with achievement and behavior. Some of the variables thought to be important in predicting student outcomes actually have correlated negatively with such outcomes.

Stevens and Rosenshine (1981) indicated that conflicting data are found for choral or group responding. The Oregon Direct Instruction Follow Through program, found to be the most successful of the Follow Through Programs, relied heavily on group responses during reading practice (Becker, 1978). Yet others (Anderson et al., 1979) have found a negative relationship between choral responding and achievement.

A number of investigators have studied the type or pattern of teacher questions. Although higher cognitive level or open-ended

questions have been emphasized as important in developing cognitive skills, Stallings (1975) found such questions negatively related to achievement, while Winne (1979) found that no consistent relation has been demonstrated. Other researchers have suggested that a certain pattern of questioning is most effective in group instruction, but as of yet, little research has been done in this area and such findings as do exist should be considered tentative (Stevens & Rosenshine, 1981).

As Bloom (1980) noted, neither teacher personality nor classroom characteristics have demonstrated a consistent relationship with student outcomes. Although viewed as among the most important teacher characteristics by investigators using an interaction analysis paradigm, teacher warmth has failed to show any relationship to student achievement or behavior, despite a large body of correlational data (Dunkin & Biddle, 1974). Similarly, Weinstein (1979) reported that physical environment variables, such as layout of the classroom, have demonstrated at best weak correlations with student outcome measures.

Observational Methodology

In observing teacher behavior in the classroom, many different instruments have been adopted by researchers. Measures have ranged in precision from frequency counts of a specific teacher command (Madsen, Becker, Thomas, Koser, & Plager, 1968) to coding systems or rating scales defining classes or categories of behavior (Fisher et al., 1980; Flanders, 1970), to purely narrative descriptions of teacher behavior later coded into categories (Evertson & Emmer, 1982). Little

consensus exists between different research approaches, or perhaps even within approaches, as to the single best method of observation.

This lack of consensus extends to issues of technical adequacy as well. Observer bias, knowledge of expected results, and the reactivity of the observation process all threaten observational accuracy (Lipinski & Nelson, 1974), but there exists little agreement as to what constitutes an acceptable test of reliability for an observational device. Advocates of behavioral coding systems tend to rely heavily on measures of inter-rater agreement to provide an initial estimate of observer reliability (Kazdin, 1978), while those who use rating systems may ignore observer agreement altogether, focusing instead on a posteriori statistical tests to determine the extent of measurement error (Saal, Downey, & Lahey, 1980).

Such differences only serve to underscore more important methodological disagreements that ultimately might be traced back to theoretical foundations. Among process-product researchers, high inference measures such as rating scales or narrative description often are favored over more molecular coding systems (Brophy & Evertson, 1976). It is argued that high inference instruments prove more generalizable across time and provide a more accurate picture of the variety and complexity of behavior than do low inference systems, such as behavior frequency counts (Rosenshine & Furst, 1973; Shavelson & Dempsey-Atwood, 1976).

Yet, increased stability may be bought at the price of precision. The broader the category being observed, the more complex the judgment required, and the level of reliability of observational assessment

devices varies inversely with the complexity of the coding system (Haynes, 1978). Narrative recordings, while in principle providing a more detailed account of the "stream of behavior," also may decrease reliability, since the observer in such a system is forced to devote more of his/her attention to writing, and less to observation (Lipinski & Nelson, 1974). Thus, the apparent increased stability of high inference coding systems may be artificially inflated by their generality: two observers might be in close agreement in recalling that the teacher was wearing a suit, but reliability would doubtless drop if they were then asked to precisely describe the suit.

Perhaps because the technology is so new, little empirical evidence exists to settle such disputes. Emmer, Evertson, and Brophy (1979) have demonstrated that levels of student achievement produced in different classrooms are remarkably stable over time, and have claimed this as support for the stability of teacher behavior. Yet, the two are not the same: a variety of teacher behaviors may produce the same outcome. More behaviorally oriented theorists have argued that all behavior is, in fact, situation-specific (Mischel, 1968), implying that instability over time may be as much a function of behavior as of measurement. Ultimately the selection of observational strategy may be based on philosophy: those with a more cognitive, inner-directed view of learning may tend to choose more molar instruments, while those who stress the importance of behavior may select more precise and less inferential measures (cf. Lacey, 1980).

Conclusion

In his analysis of current educational research trends, Bloom (1980) concluded:

> If we are convinced that a good education is necessary for all who live in modern society, then we must search for the alterable variables that can make a difference in the learning of children and adults in or out of the school. Such alterable variables will do much to explain the learning process, and they will do even more to directly improve the teaching and learning processes in the schools (p. 385).

While Bloom's optimistic predictions may eventually prove accurate, there are at present methodological and practical problems still to be faced in the observational study of teaching.

Little agreement exists concerning what constitutes an appropriate measuring device for observational research. Advocates of high inference measures, such as narrative records or rating scales, argue that these provide more stable and generalizable estimates of teacher and student behavior. Those who support the use of more molecular coding systems contend that such apparent stability may only be an artifact of imprecise measurement.

In addition, with the exception of reinforcement and punishment, few of the variables identified as important in classroom management have been studied in settings devoted to special populations. It seems likely that special education settings would demand a somewhat different set of strategies for classroom management than would a regular class situation. Unless we assume that students referred to special settings are the product of poor teaching, it is evident that, perhaps for the majority of special education students, techniques

that ordinarily are effective have failed to achieve the desired results. One would expect, then, that a different set of conditions may be required to promote optimal student learning in the resource room.

Indeed, the different goals and conditions prevailing in special classrooms may make process-product research more difficult in such settings. The large, relatively homogeneous regular classroom tends to favor strategies that emphasize efficiency; that is, provide effective instruction to the greatest number of children. In a special setting, where class sizes are small and students with more intense learning or behavior disorders may require a unique approach, effective instruction may need to be studied on an individual basis. In fact, given our current state of knowledge in special education, we do not know what will work with any given student (Deno & Mirkin, 1977). Thus, each program for each individual student must be viewed as an "educational experiment": new techniques must be tried and monitored until success is achieved.

It is likely that many of the teaching behaviors consistently identified as important in classroom management coexist simultaneously in the lessons of successful teachers. But because of the different theoretical and methodological backgrounds of the researchers investigating these concepts, rarely are more than a few of these variables studied simultaneously. Further, although some have asserted that teaching behaviors that structure the overall learning environment are more important than direct behavior management in

maintaining classroom discipline (Kounin, 1970), few studies have directly compared the effects of the two types of teacher behavior.

Further studies of this nature, using more molecular categories of teacher behavior, could be valuable in determining which teacher behaviors are most important in predicting behavior in special classrooms. In much current classroom research, constructs are defined on the basis of logical similarity. Multivariate analyses, such as factor analysis, of a large number of specific teacher behaviors could identify behaviors that cluster empirically. Until such time as these analyses are performed, logical groupings may only lead to further confusion, as different investigators tend to include different behaviors in broad categories such as "Feedback."

Correlational studies, however, are limited in their usefulness. Although partialling out variance through such techniques as stepwise regression can result in clearer distinctions between effective variables and those that acquire their predictive power only in correlation with effective variables, there is no guarantee that even variables found effective are not themselves mediated by other as yet unexplored variables. Experimental studies training teachers in the use of one or two of the variables, then measuring effects on teaching behavior in general, would be more useful. Given the wide differences between programs for behavior or learning disordered children, and the smaller populations in special classrooms, single-subject research methodologies may prove especially valuable in the initial identification of effective management strategies in such settings.

At the same time, the technical characteristics of the observational methodologies themselves should be investigated. In addition to providing tests for both observer agreement and internal consistency, such studies should begin to explore the validity of the various instruments. Observing classroom situations with both high and low inference coding systems simultaneously would provide a more direct comparison of the two methods, and might help determine whether instability of teacher behavior over time is a measurement artifact or a function of the behavior itself. Experimental manipulation of teacher behavior in such a study might be used to assess whether high inference, or low inference devices are more sensitive to change in behavior.

The new observational research methodologies in classroom research do offer a hopeful sign. Static variables, such as the label "emotional disturbance," encouraged classification and removal from the mainstream of the child so labeled (Bloom, 1980), and implied genetic, or at least deep-rooted environmentally based disorder. The new emphasis on teaching behaviors implies that student behavior can be effectively managed or directed in the current environment, thus encouraging remediation. Such a shift in perspective can only be of benefit to children in both regular and special education.

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Footnote

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PUBLICATIONS

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